Model ZW215FP

Fire Pump Suction Control Valve

Application

The Zurn Wilkins Model ZW215FP Fire Pump Suction Control Valve is designed specifically for Fire Suppression Systems to prevent fire pumps from over-drawing from the water supply resulting in damage to the pump or the supply network because of very low or negative pressures on the suction side of the fire pump. The pilot assembly reacts quickly to increases and decreases of suction pressure. The control valve will close if suction pressure drops below the set pressure. The control valve will open again once suction pressure rises to the control valve set pressure and will modulate to keep the suction pressure at the set pressure until supply increases. In addition the Model ZW215FP comes standard with red epoxy coating internally and externally for corrosion protection, as well as a test cock on the sensing port for quick bleeding of sensing line. The ZW215FP is available in both globe or angle pattern bodies.

Standards Compliance:

• FM ® Approved

FM APPROVED

Materials

Main Valve Body	Ductile Iron ASTM A536
Main Valve Bonnet	Ductile Iron ASTM A536
Disc Guide	Stainless Steel
Seat	Stainless Steel
Disc	Buna-N Rubber
Diaphragm	Nylon Reinforced Buna-N
Stem	Stainless Steel
Spring	Stainless Steel

Standard Features

☐ Red Epoxy Coated, FDA Approved

☐ Pilot Assembly
- "Wye" Type Strainer
- Sensing Line Test Cock
- Visual Position Indicator
- 3/8" Flare Sensing Line Connection

☐ ANSI Class 150 Flanges

☐ Copper Tubing and Brass Fittings

Sizes

Globe and Angle:

Threaded ends, ANSI B1.20.1 ☐ 2" - 3" 300 psi max.

Flanged ends, ANSI B16.42 ☐ 2" - 10"
☐ ANSI Class 150, 250 psi max.
☐ ANSI Class 300, 300 psi max.

Grooved ends, AWWA C606 ☐ 2" - 10" 300 psi max.

Temperature Rating: ☐ Water 33°F to 140°F

Pilot Spring Range: ☐ 10-30 psi

Options

(Add suffix letters to ZW215FP)

Function
☐ C - 40XL2 Hydraulic Check with Isolation Valve

Body
☐ A - Angle Style Body

Connections
☐ G - IPS Grooved (inlet rating 300 psi)
☐ TH - NPT Threaded (inlet rating 300 psi)
☐ Y - ANSI Class 300 Flanges (inlet rating 300 psi)

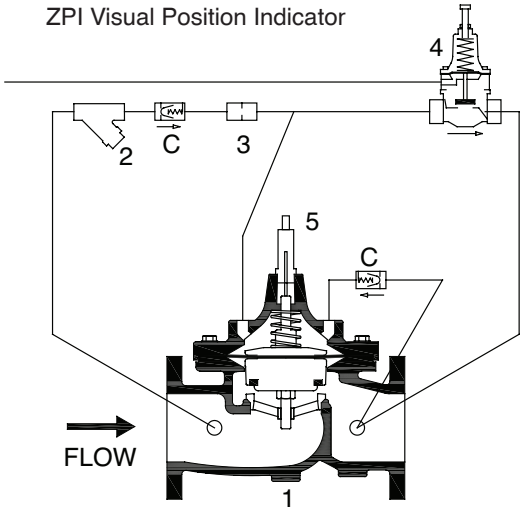
Main Valve Options
☐ Z2 - ZPI2 Stainless Steel Dry Position Indicator*

*Replaces the standard ZPI position indicator on valves with Stainless Steel Pilotry option

Pilot System
☐ SP - All Stainless Steel Pilotry (replaces all brass fittings, pilot valve and copper tubing)
☐ RV - Pilot on Reverse Side

Schematic Diagram

Item	Description of Standard Features
1	Main Valve
2	SXL "Wye" Type Strainer
3	Restriction Fitting
4	PV-RLF Pressure Relief Valve
5	ZPI Visual Position Indicator



Zurn Industries, LLC | Wilkins
1747 Commerce Way, Paso Robles, CA U.S.A. 93446 Ph. 855-663-9876, Fax 805-238-5766
In Canada | **Zurn Industries Limited**
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, 877-892-5216
www.zurn.com

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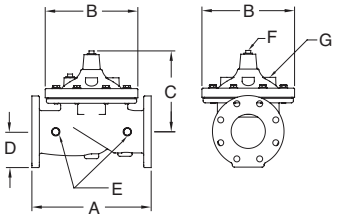
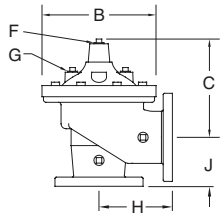
Globe and Angle Main Valve Dimensions

DIM	FULL PORT	VALVE SIZE INCHES (mm)								
		1 1/4 (32)	1 1/2(38)	2 (50)	2 1/2 (65)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)
A	Threaded	7 1/4	7 1/4	9 7/16	11	12 1/2				
	Class 150 Flange		8 1/2	9 3/8	11	12	15	20	25 3/8	29 3/4
	Class 300 Flange		9	10	11 5/8	13 1/4	15 5/8	21	26 7/16	31 1/8
	Grooved		8 1/2	9	11	12 1/2	15	20	25 3/8	29 3/4
B	Diameter	5 5/8	5 5/8	6 3/4	8	9 3/16	11 11/16	15 3/4	20 1/8	23 11/16
C	Max.	5 3/4	5 3/4	6 3/16	7 3/8	8	10 3/16	12 5/16	15 9/16	17 5/8
D	Threaded/Grooved	1 3/8	1 3/8	1 3/4	2 1/8	2 9/16	3 7/16	5	5	5 13/16
	Class 150 Flange		2 1/2	3	3 1/2	3 3/4	4 1/2	5 1/2	6 3/4	8
	Class 300 Flange		3	3 1/4	3 3/4	4 1/8	5	6 1/4	7 1/2	8 3/4
E	NPT Body Tap	3/8	3/8	3/8	1/2	1/2	3/4	3/4	1	1
F	NPT Cvr. Plug Tap	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1	1
G	NPT Cover Tap	3/8	3/8	3/8	1/2	1/2	3/4	3/4	1	1
H	Threaded	3 1/4	3 1/4	4 3/4	5 1/2	6 1/4				
	Class 150 Flange		4	4 3/4	5 1/2	6	7 1/2	10	12 11/16	14 7/8
	Class 300 Flange		4 1/4	5	6	6 7/16	8	10 1/2	13 1/4	15 9/16
	Grooved		4 7/16	4 3/4	5 1/2	6	7 1/2	10	12 11/16	14 7/8
J	Threaded	1 15/16	1 15/16	3 1/4	4	4 1/2				
	Class 150 Flange		4	3 1/4	4	4	5	6	8	8 5/8
	Class 300 Flange		4 1/4	3 1/2	4 5/16	4 7/16	5 5/16	6 1/2	8 1/2	9 5 /16
	Grooved		3 3/16	3 1/4	4	4 1/4	5	6	8	8 5/8
Valve Stem Internal Thread		10-32	10-32	10-32	10-32	1/4-20	1/4-20	1/4-20	3/8-16	3/8-16
Stem Travel (in)		7/16	7/16	3/4	7/8	1	1 3/16	1 3/4	2 3/8	2 13/16
Approx. Wt. (lbs)		22	26	36	55	70	130	240	440	720



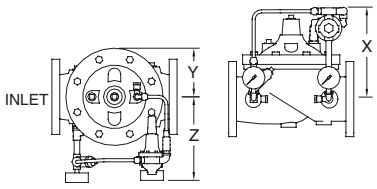
Globe Style Body



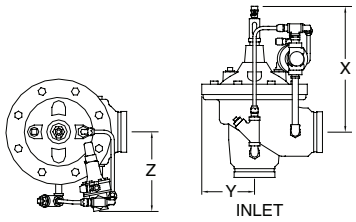
Angle Style Body

Pilot System Dimensions

PILOT SYSTEM DIMENSIONS			VALVES SIZE INCHES (mm)						
	DIM		2" (50)	2-1/2" (65)	3" (80)	4" (100)	6" (150)	8" (200)	10" (250)
Full Port Body	X	Max. (inches)	10	11 1/8	12	13 7/8	16	21	23 1/4
	Y	Max. (inches)	3 1/2	4	4 1/2	6	8	10	12
	Z	Max. (inches)	9	9	9 1/2	10	11 1/2	13	14 1/2
Angle Body	X	Max. (inches)	10	11 1/8	12	13 7/8	16	21	23 1/4
	Y	Max. (inches)	5	5	5	6	8	10	12
	Z	Max. (inches)	8	8	8	8 1/4	11	12 1/4	15



Globe Pilot System Dimensions



Angle Pilot System Dimensions

Operation

The Zurn Wilkins ZW215FP utilizes a pressure relief pilot valve that installs on the discharge side of the control circuitry. The pilot Model PV-RLF is a direct acting, normally closed, spring loaded, diaphragm actuated valve. The operation of the ZW-215FP begins with accurately sizing the valve, then fine tuning the control circuitry by adjusting the PV-RLF to open at the desired suction pressure. A sensing line runs externally from the suction side of the pump to the pilot control chamber under the diaphragm. Thus, suction pressure exceeding the preset of the pilot acts to open the pilot valve while the adjustable spring in the pilot seeks to keep it closed. The result is a modulating action in the pilot that is transmitted to the cover of the main valve. This creates a mirror modulation of the diaphragm assembly in the main valve. Suction pressure is maintained within narrow limits regardless of changing flow rates or outlet pressure when supply has decreased below acceptable limits.

Valve Size	inches	2	2 1/2	3	4	6	8	10
	mm	50	65	80	100	150	200	250
Suggested Flow (GPM)	Max. Continuous	210	300	460	800	1800	3100	4900
	Max Intermittent	250	375	600	1000	2250	4000	6000
	Min. Continuous	15	20	30	50	115	200	300
Suggested Flow (Liters/sec)	Max. Continuous	13	19	29	50	113	195	309
	Max. Intermittent	16.4	23	37	62	142	246	388
	Min. Continuous	0.9	1.3	1.9	3.2	7.2	13	19

Flow Characteristics

Suggested flow calculations are based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 20 ft./sec (6.1 meters/sec) & maximum surge is approx. 25 ft./sec (7.6 meters/sec). Many factors should be considered in sizing pressure relief valves including inlet pressure, outlet pressure and flow rates.

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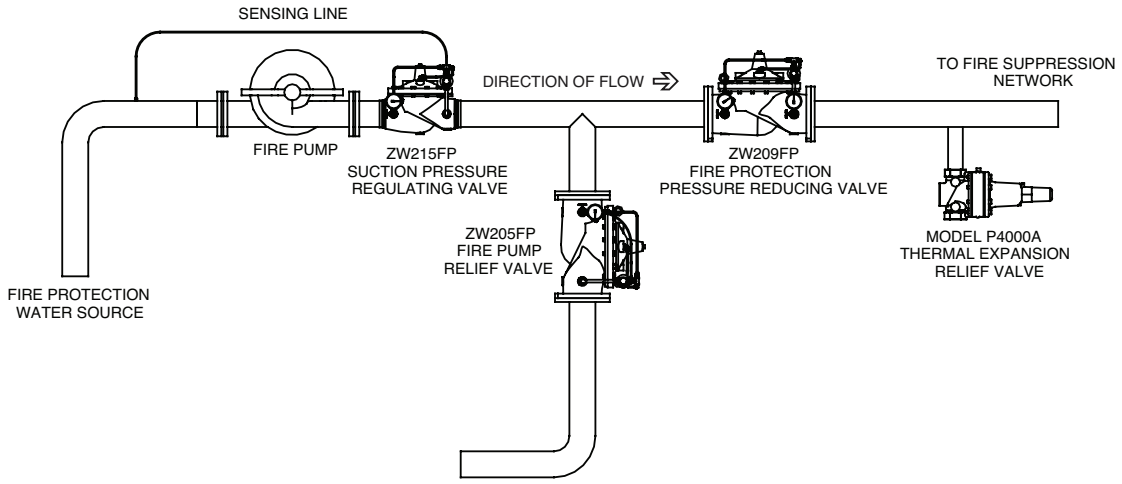
Typical Installation



Caution: The recommended installation orientation for ACVs is horizontal, with the valve cover up. 6" and larger valves should only be installed horizontally, with the valve cover up, due to the difficulty of properly bleeding air out of the cover and performing maintenance on valves installed in the vertical orientation.

Flow Characteristics

Specifications

The Fire Pump Suction Control Valve shall be a single seated, line pressure operated, diaphragm actuated, pilot controlled globe or angle valve. The valve shall seal by means of a corrosion-resistant seat and resilient, rectangular seat disc. These and other parts shall be replaceable in the field; all such service and adjustments to be possible without removing the valve from the line. The stem of the basic valve shall be guided top and bottom by integral bushings. The basic valve and its pilot control system shall contain no packing glands or stuffing boxes. The diaphragm shall not be used as a seating surface nor shall pistons be used as an operating medium. All internal and external ferrous surfaces shall be coated with a high quality, fusion epoxy coating. The pilot control system shall include a direct-acting, normally closed, spring-loaded, diaphragm actuated pilot valve with the stem guided between the diaphragm assembly and seat disc. To ensure precise suction pressure control the appropriately rated pilot valve shall be field adjustable within the pressure control range of the spring. The Fire Pump Suction Control Valve shall be a ZURN WILKINS Model ZW215FP.